

We claim:

1. A method for synchronizing a route change in a routing table with a plurality of multicast routing protocols in a network device in a communication network device, the method comprising:
  - 5 assigning a route ID value to each route in the routing table;
  - assigning a bookmark in a route change queue to each multicast routing protocol, the bookmark having a value equivalent to the route ID value of the last route processed by the multicast routing protocol;
  - 10 assigning a new route ID value to each route changed in the routing table;
  - storing each route changed in the route change queue; and
  - comparing the bookmark value of each multicast routing protocol to the highest route ID value in the route change queue.
2. A method according to claim 1, wherein the route change is the addition of a new route to the routing table.
3. A method according to claim 1, wherein the route change is the deletion of a route from the routing table.
- 20 4. A method according to claim 1, wherein the route change is updating a route in the routing table.
5. A method according to claim 1, further including processing routes in the route change queue with route ID values greater than the bookmark value of the multicast routing protocol.
- 25 6. A route entry for a route in a routing table for a plurality of multicast routing protocols, the route entry comprising:
  - an address for the route source network;

an address for the next hop of the route;  
an address for the next hop interface of the route;  
a route state value for indicating the current state of the route;  
a routing protocol identifier for identifying the routing protocol associated with the  
route; and

5 a route ID value for determining when the route entry has been processed by each of  
the plurality of routing protocols.

10 7. A computer program product for use on a computer system for synchronizing a route  
change in a routing table with a plurality of multicast routing protocols in a network device in  
a communication network, the computer program product comprising a computer useable  
medium having computer readable program code thereon, the computer readable program  
code including:

program code for assigning a route ID value to each route in the routing table;

15 program code for assigning a bookmark in a route change queue to each multicast  
routing protocol, the bookmark having a value equivalent to the route ID value of the last  
route processed by the multicast routing protocol;

program code for assigning a new route ID value to each route changed in the routing  
table;

20 program code for storing each route changed in the route change queue; and

program code for comparing the bookmark value of each multicast routing protocol to  
the highest route ID value in the route change queue.

25 8. A computer program product according to claim 7, wherein the route change is the  
addition of a new route to the routing table.

9. A computer program product according to claim 7, wherein the route change is the  
deletion of a route from the routing table.

30 10. A computer program product according to claim 7, wherein the route change is  
updating a route in the routing table.

11. A computer program product according to claim 7, further including program code for processing routes in the route change queue with route ID values greater than the bookmark value of the multicast routing protocol.